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EXAMINER

JAGANNATHAN, MELANIE

ART UNIT	PAPER NUMBER
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2666

DATE MAILED: 07/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/813,099

Applicant(s)

SAINT-HILAIRE ET AL.

Examiner

Melanie Jagannathan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-12,14-18,20,21 and 23-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-12,14-18,20,21 and 23-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1,3-8 and 23,29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al (hereinafter Inoue), U.S. Patent No. 6,510,153 in view of Kuhnelt et al. US 6,240,078.

Regarding claims 1,23,29: the step of establishing a communication path is anticipated by Inoue. When a mobile computer moves from its home network to another network, it registers its new location with its home-agent. When this registration message is received, the transmission of data destined to the mobile computer is realized by capturing it by the home-agent of the mobile computer, and carrying out the data routing

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control with respect to the mobile computer (see column 1, lines 56-63). The step of maintaining the communication path through the home-device when the mobile-device moves to a second-communication-area is anticipated by Inoue. The reference discloses that when the mobile computer (mobile device) visits a new location ("second-communication-area), it repeats the process of registration by informing the home-agent (home-device) of its new location. After this step, the home-agent captures and forwards the data to the mobile computer allowing the mobile computer to maintain its communication (see column 1 lines 50-63).

Inoue et al. discloses all of the limitations of the claims except for the step of using program layers below TCP/IP layers in the mobile-device and the home-device to establish and maintain the communication path. Kuhnel et al. discloses wireless ATM network with mobility control for handovers in ATM connections, redirection of virtual channels. ATM is at a lower layer than TCP/IP. At the time the invention was made it would have been obvious to a person of ordinary skill in the art to modify mobile and home device of Inoue et al with ATM mobility of Kuhnel et al. One of ordinary skill in the art would be motivated to do this since Kuhnel et al. mobility enhancements allow for lossless or seamless handover during cell movement.

Regarding claim 3: the step of maintaining the communication when the mobile-device moves from the first-communication-area with a first-subnet to a second-communication-area with a second-subnet is anticipated by Inoue. Fig. 1 and Fig.3 show that when the mobile computer (mobile-device) moves from its home network (first-subnet) to a visiting network (second-subnet), the mobile IP

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protocol provides a constant communication for the mobile computer through its home-agent (See column 3 lines 22-29).

Regarding claim 4: the step of assigning a home-address is anticipated by Inoue. The mobile computer continually uses a fixed address (home-address) assigned at a network (home-network) to which the mobile computer originally belongs even at visited sites (see column 2 lines 7-12). The step of assigning a first-real address is anticipated by Inoue. When the mobile computer moves outside its own home network, the mobile computer acquires a care-of-address (first-real address) to be used at the visited site network using protocols such as DHCP (see column 6 lines 14-18). The step of detecting the mobile-device's movement is anticipated by Inoue. When the mobile computer visits other networks it carries out a moving detection process and acquires a new care-of-address in the new network (see column 8 lines 5-11).

Regarding claim 5: the step of assigning a second-real-address is anticipated by Inoue. The mobile computer carries out a process by which it detects that it is visiting a new network followed by acquiring a new care-of address (second-real-address) and communicating its new location with the home-agent (see column 6 lines 14-18).

Regarding claim 6: the step of generating the first and second real address from a DHCP server is anticipated by Inoue. The reference discloses that the mobile IP communications scheme provides a capability by which the mobile IP protocol will operate when the home and visiting networks use DHCP for assigning care-of-address (first and second real address) to the mobile computer (see column 2 lines 60-65 and column 6 lines 14-18).

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Regarding claim 7: the step of maintaining the communication path when the mobile-device moves from a first-communication-area associated with a first subnet to a second-communication-area with a second-subnet is anticipated by Inoue. The reference discloses a mobile computer management device for managing moving location information of a mobile computer which is capable of carrying out communications while moving among inter-connected networks (first and second subnets) by transferring packets destined to the mobile computer to a current location (second-subnet) of the mobile computer (see column 2 lines 66-67 and column 3 lines 1-6).

Regarding claim 8: the step of detecting movement into the second communication-area by the mobile-device is anticipated by Inoue. The reference discloses a moving detection and care-of- address acquisition when a mobile computer moves from one network to another network (second-communications area). For an example see column 8 lines 5-11.

Regarding claim 23: the article comprising computer-readable medium that stores instructions to assign a home-address associated with a home-device to a mobile device is anticipated by Inoue. The reference discloses a home agent (HA) 5 (home-device) that assigns a fixed address (home-address) to a mobile computer when the mobile computer is on its home network. (see column 1 lines 64-67, column 2 lines 1-11). Further, Inoue discloses that the home-agent is a router (see column 1 lines 50-51). It is known in the art that routers have computer-readable mediums such as a ROM or hard disks where the operating system and the configuration information of the router is stored. The article that detects movement of the mobile-device into a second communication-area is anticipated by

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Inoue. The reference discloses that when the mobile computer visits a network that is not its home network (second communication-area), it carries out move detection by acquiring a new real address (care-of address) and registering the new address with its home-agent. The home agent updates its table by associating the mobile computer's new real address with its home-address that is stored on the home-agent (see Fig.5, Fig.6, and column 8 lines 5-11).

2. Claims 9-12, 14-18, 20-21 and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Internet Engineering Task Force (IETF), RFC 2344, Reverse Tunneling for Mobile IP, published in May 1998 in view of Kuhnel et al.

Regarding claims 9, 15, 18, and 25: generating a request from a mobile-device, the request comprising a request-layer including a home-address of the mobile-device and a server address is anticipated by RFC 2344. Communicating the encapsulated request to a home device is anticipated by RFC2344. The reference discloses that the packet is forwarded to the home agent after the encapsulation step. For an example see page 12, last line, page 13 first paragraph, IP fields --encapsulating header-- and IP fields -original header--. Further, RFC 2344 discloses that the mobile node generates requests, encapsulates requests, uses IP addressing to send/receive encapsulated packets, communicate encapsulated packets with its home agent or other hosts, detects changes in its physical location, registers its new location with its home agent, and keeps its permanent home address. It is inherent that such device must have a processor to execute the tunneling, encapsulation, and registration routines; a memory to keep its operational configuration including its permanent home address, the tunneling and TCP/IP routines;

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and a network interface card to send/receive and communicate the tunneled packets to/from its home agent as well as correspondent hosts.

RFC 2344 discloses all of the limitations of the claims except for the step of using program layers below TCP/IP layers in the mobile-device and the home-device to establish and maintain the communication path. Kuhnel et al. discloses wireless ATM network with mobility control for handovers in ATM connections, redirection of virtual channels. ATM is at a lower layer than TCP/IP. At the time the invention was made it would have been obvious to a person of ordinary skill in the art to modify mobile and home device of RFC 2344 with ATM mobility of Kuhnel et al. One of ordinary skill in the art would be motivated to do this since Kuhnel et al. mobility enhancements allow for lossless or seamless handover during cell movement.

Regarding claims 10, 14, 16, 20, and 26: removing the roaming-layer from the encapsulated request-layer is anticipated by RFC 2344. The reference discloses that while the mobile computer's registration with the home agent is still in effect (the roaming layer), the home agent processes each reverse tunneled packet by de-capsulating it and recovering the original packet (see page 12 first paragraph). The step of communicating the request from the home-device to a server based on server address is anticipated by RFC2344. The reference discloses that after the de-capsulation step, the home agent forwards (communicate) the original packet to the destination address or the correspondent host (server address) on behalf of its sender, i.e., the mobile node (see page 12 first paragraph).

Further, RFC 2344 discloses that the home-agent responds to registration requests it receives from the mobile nodes, keeps a record of each mobile node's permanent



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address and its care-of address, intercepts/tunnels data destined to each mobile node, and communicates requests issued by mobile nodes to the corresponding hosts on behalf of each mobile node. It is inherent that the home agent must have a processor to process and execute program routines such as tunneling, encapsulation, and IP address assignments, a memory to store the home and the care-of address of each mobile node, and a network interface adapter to send/receive or communicate the tunneled and non-tunneled packets with the mobile node as well as correspondent hosts.

Regarding claim 11 and 27: the step of generating a response having the server address and the home device address is anticipated by RFC 2344. The reference discloses that while the registration is in effect, a home agent processes each reverse tunneled packet by de-encapsulating it, recovering the original packet, and then forwarding it on behalf of its sender (the mobile node) to the correspondent host's address (server). It is well known in the art that routers with network address translation (NAT) send requests, on behalf their subnet nodes, to remote hosts using their own address as the source address. Therefore, when the host receives a request (such as a web browser request), its responds (web server response i.e., response layer) includes the router address (the address where the request was originated from) as the destination address and its own address (server address) as the source address. Once the response reaches the NAT router, the router forwards the response to the subnet node by replacing its own address with the subnet node's address. (see page 12 first paragraph). Communicating the response to the home-device is anticipated by RFC 2344. As stated above, the server generates a response to the request it received from the home agent, it sends the response back to the home agent (communicating)

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Regarding claims 12, 17, 21, 22, and 28: the step of encapsulating the response with the real-address and home address of the mobile device is anticipated by RFC 2344. The reference discloses a forward tunnel, from the home agent to the mobile node, which is used for delivering packets destined to the mobile node (see page 3, section 1.1). The forward tunnel is symmetric with respect to the reverse tunnel and uses IP-in-IP encapsulation using the mobile node's home address and its care-of address (real address, roaming layer). (see page 4, section 1.2).

The step of communicating the encapsulated response is anticipated by RFC2344. The purpose of the forward tunnel is for delivering (communicating) the packets destined to the mobile node.

As stated in rationale for the rejection of claims 10, 14, 16, and 20, the home agent must have a memory in order to perform its functions.

### ***Response to Arguments***

Applicant's arguments filed 4/27/2004 have been fully considered but are moot in view of new grounds of rejection. Applicant argues references Inoue et al. and RFC2344 do not disclose limitation of program layers residing below TCP/IP layers to establish and maintain paths. Specification of instant application refers to mobile being able to move seamlessly between different locations and the maintenance of uninterrupted communication. Examiner submits reference Kuhnel et al. as new grounds of rejection.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie Jagannathan whose telephone number is 703-305-8078. The examiner can normally be reached on Monday-Friday from 8:00 a.m.-4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 703-308-5463. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Melanie Jagannathan  
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AU 2666

MJ



DANG TON  
PATENT EXAMINER